

Model 511

HAMMER UNION PRESSURE TRANSDUCER



Viatran 511 Hammer Union Pressure Transducer for measuring pump discharge pressure for fracturing, acidizing, cementing and nitrogen injection.

- Patented* Design to withstand extreme vibration and abusive impact
- Impervious to Fluid Ingress with patented angled connector base, drain holes, and sealing method
- Easy Access Connector Housing - 77% greater area
- Expanded compensated temperature range
- Improved sealing method for connector pins
- External adjust, identification and peak pressure capture



*US Patent D 711266
*EU Patent No. 002334250-001
*CN Patent ZL 201330527540.1

PERFORMANCE

Full Scale Pressure Ranges.....	0-5K, 0-6K, 0-10K, 0-15K, 0-20K PSIS
Combined Accuracy (BFSL) (Non-Linearity, Hysteresis & Repeatability).....	$\leq \pm 0.25\%$ FSO
Full Scale Output (FSO).....	16.00 mA $\pm 1\%$ FSO @70°F
Zero Balance.....	4 mA $\pm 1\%$ FSO @70°F
Compensated Temperature Range.....	+40°F to 140°F (4°C to 60°C)
Operating Temperature Range.....	-40°F to 185°F (-40°C to 85°C)
Storage Temperature Range.....	-67°F to 302°F (-55°C to 150°C)
Long Term Stability (%FSO).....	$\leq \pm 0.25\%$ FSO per 6 months
Thermal Effect on Zero.....	$\leq \pm 1\%$ FSO per 100°F Typical
Thermal Effect on Span.....	$\leq \pm 1\%$ FSO per 100°F Typical

ELECTRICAL

Output Signal.....	4-20 mA @70°F
Supply Voltage.....	9-28 Vdc
Power Supply Regulation.....	$< \pm 0.01\%$ FSO per volt
Load Impedance.....	900 ohms @ 28 VDC decreasing linearity to 0 ohms @ 9 VDC
Circuit Protection.....	Reverse polarity protected
RFI/EMI.....	$< 1\%$ FSO output change with 3V Rms from 150 kHz to 80 MHz (80% AM modulated at 1 kHz) applied to power supply and signal lines [IEC 61000-4-6 radio frequency common mode immunity], 1% output change when exposed to a radiated electromagnetic field of 10 V/m from 80 MHz to 1 GHz AM modulated at 1 kHz and 3 V/m 1.4 GHz to 2.7 GHz. [IEC 61000-4-3 Radiated electromagnetic field immunity]



*Pending approvals

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Voltage Spike Protection	Withstand 1000 volt spike per EN 61000-4-5
Insulation Resistance.....	<5 nS
Response Time.....	<1 millisecond to reach 90% of FSO
Range Calibration Signal.....	100±10% FSO by exciting pins E&F
Calibration Power Supply Voltage.....	8.5-28 VDC
Calibration Signal Accuracy.....	Readings on calibration certificate are within ±0.2% FSO of actual Cal signal output
Bridge Resistance.....	10K ohms, nominal
Standard Electrical Connection.....	Mates with 6 pin, Hermetic, Box Mount, Shell Size 10, MIL-C-26482 bendix type connector

MECHANICAL

Standard Pressure Port.....	Male hammer union 2 inch #1502
Pressure Cavity Volume	Standard: 0.45 cubic inches Option "TP": 0.22 cubic inches
Zero Effect from Installation	<±0.3% FSO w/200 ft-lbs torque on union #1502
Shock Sensitivity	1000 g, 0.5 ms half sine wave pulse shall not cause change in calibration
Proof Pressure	1.67X range or 22,500 PSI max
Burst Pressure	3 times full scale pressure range, limited by union #1502: 22.5K PSI

MATERIALS OF CONSTRUCTION

Wetted Materials	NACE compliant Inconel 718 wetted material as standard (MR0175/ISO 15156-3:2009(E))
Enclosure Material.....	304 Stainless Steel
Identification	Laser marked on body of unit
Enclosure Rating	IP68*, NEMA 6P*
Weight.....	5.6 lbs. nominal

OPTIONS

DC	Compensated temperature -40°F to 140°F
DG	Improved temperature compensation
DH	Special Range
DN	Improved accuracy
EA	Special Calibration Run
EH.....	Compensated temperature range 40°F to 180°F
NA.....	Carrying handle attached
NH	Customer specific identification
NP.....	Protective ring cage
NQ.....	Protective criss-cross cage
QJ.....	17-4 PH wetted material, heat treated per NACE MR0175-2000
Z().....	Special connectors

APPROVALS

KK*	Brazil Inmetro Intrinsic Safety
KL*	Brazil Inmetro Non-Incendive
NX*	Canada Intrinsic Safety Label
TJ*	Canada Non-Incendive Label
XX*	CMC China Intrinsic Safety
NK*	Europe Intrinsic Safety Label
TK*	Europe Non-Incendive
KH*	IECEX International Intrinsic Safety Label
KJ*	IECEX International Non-Incendive
TW.....	GOST-R
XX*	Russia GOST-R Intrinsic Safety Label
XX*	Russia GOST-R Non-Incendive
TF*	US Intrinsic Safety Label
NZ*	US Non-Incendive
TG*	US & Canada Intrinsic Safety Labels

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CERTIFICATIONS (CONSULT FACTORY FOR AVAILABLE OPTIONS)

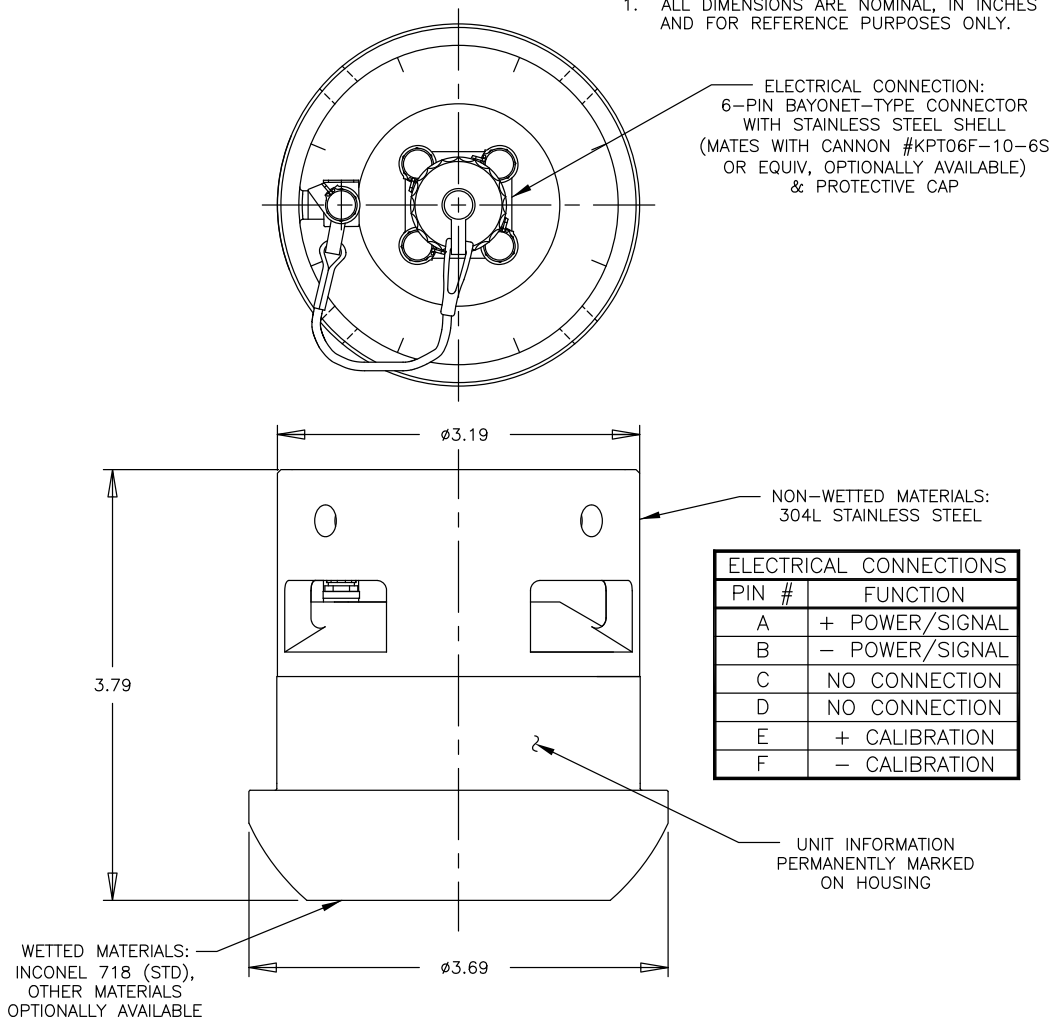
USA	*Intrinsic Safety: Class I Division 1, Groups A-G, Zone 0, AEx ia IIC, T4 at Ta<=85°C, T5 at <=76°C, NEMA Type 6P, IP68 *Non-Incendive: Class I Division 2, Groups A,B,C,D,F,G, Zone 2, AEx nA Group IIC, T6 <=85°C, T5 at Ta<=76°C, NEMA Type 6P, IP68
CANADA	*Intrinsic Safety: Ex ia IIC; Class I, Division 1, Groups A-G, Zone 0, Ex ia IIC, T6 at Ta<=80°C, T5 at Ta<=85°C, NEMA Type 6P, IP68 *Non-Incendive: Class I Division 2, Groups A,B,C,D,F,G, Zone 2, Ex nA Group IIC, T6 <=80°C, T5 at Ta<=85°C, NEMA Type 6P, IP68
EUROPE	*Intrinsic Safety: II 1G, Ex ia IIC, Ga, T6<=80°C, T5<=85°C, IP68 *Non-Incendive: II 3G, Ex nA IIC Gc, T6<=80°C, T5 <=85°C, IP68
BRAZIL	*Intrinsic Safety: Ex ia IIC Ga, T4 -20°C<Ta, 80°C<T5: -20°C<Ta<40°C, IP68 *Non-Incendive: Ex nA IIC T4 Gc (-20°C<Ta<80°C), IP68
IECEX	*Intrinsic Safety: Ex ia IIC Ga T6<=80°C, T5 <= 85°C, IP68 *Non-Incendive: Ex nA IIC Gc, T4 -20°C<Ta <80°C, T5: -20°C<Ta<40°C, IP68

EMC Directive 2004/108/EC EN 61326-1:2006

*PED Directive 97/23/EC

*RoHS Directive 2011/65/EU

1. ALL DIMENSIONS ARE NOMINAL, IN INCHES AND FOR REFERENCE PURPOSES ONLY.



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Information is accurate to the best of Viatran's knowledge. We reserve the right to change specifications at any time. Please contact Viatran for specific order inquiries.

98DS511 REV. D

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EXTERNAL CALIBRATION

- Trim zero and full scale with pressure source using DevCom 2000-LT desktop software
- Record 4 pressure spikes up to 140% of rated pressure and cumulative time on
- Digital output resolution +/- 0.06%
- Factory reset option
- Non interactive zero and span adjustment

EXTERNAL CALIBRATION ACCESSORIES:

DevCom 2000-LT Desktop software

System Requirements (minimum)

Operating System Windows NT, 2000, XP, Vista (32/64), 7 (32/64), 8 (32/64)

Processor Speed Pentium, 600 Mhz

Memory 256 MB

Hard Disk Space 500 MB

Monitor 256-color VGA

Communication Port USB, RS232, or Bluetooth

HART[®] Modem (Various PC connections and cable lengths/connections available)

24VDC power source

Power Xpress kit

250 ohm resistor

*HART[®] is a registered trademark of the HART[®] Communications Foundation

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